

THE WINSTON CHURCHILL MEMORIAL TRUST OF AUSTRALIA

BRONWEN ACKERMANN

2002/2 CHURCHILL FELLOW

CHURCHILL FELLOWSHIP OBJECTIVES

The aim of this fellowship was:

1. To find information on available health curriculum in music schools and in private music health teaching courses.
2. To investigate current research practices and developments in musicians' health research centres.
3. To further develop my clinical skills in assessing and treating musicians by observing practices used by performing arts health clinics.

Germany, UK, USA.

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Signed

Bronwen Ackermann

10th September 2003

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INTRODUCTION

To play an instrument at a high level of skill requires many years of training, usually commencing in early childhood, with increasingly long hours of daily practice required as skills progress. These skills involved to be an elite musician are some of the most complex activities carried out by the human body. Highly developed levels of speed, agility, balance and control are needed for the physical movements, which are then all moderated by the aural feedback as the music is produced to create the desired sound effect. It is little wonder then that these skilled performers may be likely to suffer an injury as a result of playing their instrument.

Surprisingly enough, only sporadic health attention has been paid to the field of musicians' health until the last 20 years, despite reports of such injuries occurring in the literature for hundreds of years. To be able to understand some of the basic fundamentals of the body's physical capabilities it is important to understand limitations and potential areas of improvement in one's individual capacity to perform. This can be seen in the field of sports injuries, where athletes are involved in a complicated system of performance optimisation that is carefully monitored by an array of doctors, therapists, sports coaches and conditioning coaches, as well as information being given to the athletes themselves. This field is now starting to grow in Europe and North America in regard to musicians' health.

Over the past 15 years working as a physiotherapist, no field of work has intrigued me as much as that of injury prevention and treatment in musicians. And yet, injuries in musicians, from the very young to the very old, from the novice to the elite professional, have been largely overlooked until recently. As yet the field of music medicine is underdeveloped in Australia, and I felt there was a need to liaise with colleagues working internationally in this field. The Winston Churchill Memorial Fellowship has given me an invaluable opportunity to spend time with international experts in the field of music medicine and health, and form excellent professional relationships with these experts. This fellowship has given me valuable opportunities to further refine my clinical assessment, research projects and education skills in addressing the health needs of the musical community.

EXECUTIVE SUMMARY

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PROJECT DESCRIPTION

The goals of my Churchill Fellowship included analysing musicians' health education practices overseas, in both institutions and private organisations. I also wished to observe clinical practices in specialised performing arts medicine centres, including specific assessment and treatment protocols. Finally, I aimed to spend time with researchers in music medicine to discuss current trends in health research for musicians, and further refine my skills in this domain.

FELLOWSHIP HIGHLIGHTS

The field of music medicine is an expanding international discipline, working to prevent and better manage injuries occurring in musicians and in doing so reduce the alarmingly high injury rates and occasional permanent disabilities that occur in these performers.

Spending time with medical practitioners and physiotherapists who have been working hard in this field for many years was inspirational and encouraging, and these will remain close contacts now as a result of this time. In such a small specialised domain, the discussions and sharing of ideas in research has greatly refined further planned investigations into musicians' health issues. With the support of Sydney University, research ideas developed as a result of my Churchill Fellowship travels can now be further investigated by supervised research programs.

Observing other musicians' health practice operations has allowed me to refine particularly some assessment procedures within my own clinical practice, and assisted me with ideas on clinical data collection. Further ways of improving specialised clinical assessments were able to be discussed in detail with these colleagues, which was also very beneficial. Teaching these clinical skills to other health professionals in Australia is now something that I am working towards developing.

In the domain of musicians' health, the ways in which the courses in North America have been established and run has helped me with designing such courses to educate musicians on musculoskeletal health issues in Australia. These musicians' health courses are now being made available to various musical groups, including professional musicians and music teachers. The difficulties and successes reported with the integration of health education into the music school curriculum in Europe highlighted considerations that need to be addressed in an ongoing effort to implement such a program in Australia.

PROGRAMME

- ♪ February 8th to 15th – Spent with Dr Alice Brandfonbrener, Rehabilitation Specialist at the Performing Arts Medicine Clinic, Northwestern Rehabilitation Institute, Chicago and the scientific editor of the Medical Problems of Performing Artists Journal.
- ♪ February 16th to 22nd – Spent principally with Barbara Paull, physiotherapist, and Christine Harrison, violinist, who both run a performing artists health clinic in Stouffville, north of Toronto, Canada, and have run health workshops for musicians for about 10 years. A meeting also with Dr Jon Chong, an occupational physician who runs the Musicians Clinic of Canada.
- ♪ February 23rd to 27th – Spent principally with Professor Nick Quarrier, a physiotherapist and senior lecturer at Ithaca College, New York. This time also involved meetings with music teachers interested in the physical aspects of performance.
- ♪ February 28th – March 7th – Spent principally with the medical staff and physical therapists at the Miller Institute in New York city. Meetings were also held with Schmuel Tatz, a physical therapist treating musicians, and Carol Johnson, an Occupational Therapist working in hand therapy for musicians.
- ♪ March 8th – March 15th – Spent principally at the Institute for Musikermedezin Hannover with Dr Eckart Altenmueller and colleagues. Some time was also spent with Stephan Faschnact-Lenz, a physiotherapist and member of the Deutsche Gesellschaft für Musikphysiologie und Musikermedezin (DGfMM) – The German Association on the Physiology of Music and Performing Arts Medicine.
- ♪ March 17th – 22nd – Spent meeting with staff and health professionals who work at the British Performing Arts Medicine Trust, a voluntary organisation devoted to providing specialised health service to performing artists free of charge.
- ♪ June 11th – 14th – First International Musicians Medicine Meeting, Turku, Finland.
- ♪ June 18th-22nd – 21st Annual Symposium of Performing Arts Medicine, Aspen, Colorado

MAIN BODY

OVERVIEW

My time clinically was spent with medical specialists as well as physiotherapists, because in this small specialized field the approach to assessment of the musculoskeletal system is very similar, like the multidisciplinary approach seen in sports medicine. When assessing elite athletes, it is commonplace to observe their sporting technique to identify any potential biomechanical (or body movement) flaws that may be contributing to their injury. Similarly for those of us working clinically with musicians, the performer is asked to demonstrate their playing technique so that any physical aspects that may be contributing to their problem can be identified. This process takes many years of experience to refine, and is in a state of constant development. From Australia, it had been difficult to ascertain whether similar approaches were being adopted in the various performing arts centres internationally. So part of my interest in this area was to investigate what assessment methods were being employed by other health practitioners, particularly if there were objective measurements that could be reliably used. There was a similarity of approaches adopted in the methodical assessment of musicians by the experts I visited overseas. Most health practitioners used a standardized musician assessment form which allows early identification of potential problems in areas such as performance or practice scheduling. In the majority of the music medicine clinics visited, the client was then asked to perform while being observed or videotaped by the health practitioner. This process allows identification of problems that may be caused by any particular physical peculiarities in the approach to the instrument. This observation skill takes many years to develop, although these experienced practitioners seemed to be identifying similar components of instrumental movement that led to injuries. There was widespread interest in the issue of quantification of observed dysfunctional movement patterns, and it is an area that is prompting research at the current time. The method of evaluating such performance techniques was discussed in detail with these international colleagues, and many ideas were generated towards future directions to improve assessment of such skills. Being able to observe approaches to treatment helped me to further refine some of my assessment skills, including upgrading my current client evaluation forms to include information which may be useful in further understanding how injuries may be prevented over time. A thorough assessment and identification of clear causative risk factors in the etiology of an injury in a musician was overall seen to be critical. Without addressing these risk factors, the treatment effects will be limited.

It was also interesting to observe how these clinics were run in a broader business capacity. The ability to successfully run performing arts clinics is obviously also dependent on them being able to be financially viable. In many cases this was addressed by having a mixed client base, so that musicians could attend the clinic for specialized care, but care was also available for the general population with musculoskeletal disorders. In a few cases, specific funding by universities, government or trust organizations and from research grants occurred.

In the area of musicians' health education, it appears that there is still much to be done, with efforts being made mostly by individual health practitioners rather than

being globally adopted by institutions in Europe or America. So far, there seems to be two ways of implementing health education for musicians. One is by privately running health workshops, and the other was to introduce a formal health training system into the music school curriculum.

Implementing health education into the music conservatory curriculum would seem to be a logical approach to supplying future musicians and music teachers with information that may allow them to better prevent injuries in themselves and their students. This would lead to a greater emphasis on prevention of injuries rather than managing ones that have already developed. There are a few health practitioners who are now working on introducing health into the music curriculum in some conservatories internationally, mostly in Europe. This has been employed in several music institutions in Germany, and other European conservatories (such as in Austria and Switzerland), although as yet it is not universally available. While these programs are as yet in their earlier stages, reports of positive influences on both injury prevention and teaching practices are encouraging, and it was very useful to meet with these specialists to hear their approaches to implementing such programs and what the main limitations were found to be. Some factors cited as limiting this area of progress included: the need for the institutions to be more pro-active in implementing the health programs rather than relying on the time and effort of enthusiastic health professionals; the attitude of students who feared that attending such programs would lead to prejudice against them by the implication that their physical skills were somehow lacking; and the general lack of funding to run such projects.

While work continues in research and education to encourage music conservatories to adopt strategies that would ultimately cater for the long-term well being of their musicians, private health education courses are becoming increasingly available to make this information available to musicians. There are a couple of physiotherapists in North America that have been running such private courses for several years. Part of my Churchill fellowship included having the opportunity to investigate the implementation and success of such courses. This time spent with the physiotherapists involved in such projects provided an interesting range of approaches to such courses, and has given valuable insights into important factors to be included in such a course design.

The goal of refining my own research ideas and learning about other projects being undertaken internationally was achieved by the time spent with several of the health professionals in North America and Professor Altenmueller in Germany. These particular health professionals have been performing research as well as their clinical and educational loads. They have been pivotal in contributing scientific information, which can be used then to modify and optimise clinical practice. As well as discussing research directions in music medicine in detail, in some cases there may also be the possibility of international collaboration in the future. Some of the ideas gained as a result of this element of my Churchill trip are already helping to shape ongoing research projects in Australia.

Finally, attending the two major music medicine conferences was a wonderful finale to the trip. As well as making contact again with colleagues visited earlier in the year, many new contacts were made amongst health professionals, music

administrators and musicians from both Europe and North America. The music medicine conferences had a very collegiate atmosphere of sharing information and ideas presented from a broad range of perspectives and experience levels.

WEEK ONE – Chicago, USA

Dr Alice Brandfonbrener: Rehabilitation Specialist at the Performing Arts Medicine Clinic, Northwestern Rehabilitation Institute, Chicago, USA and the scientific editor of the Medical Problems of Performing Artists Journal.

Dr Alice Brandfonbrener has been a major influence on the development of the entire field of specialization in the treatment of injuries in Performing Artists. Not only has she physically provided assessment and treatment for these musicians over many years, she has also been actively involved in education for both doctors and musicians. Part of the education established by Dr Brandfonbrener includes her long-term role as scientific editor of the journal Medical Problems of Performing Artists. She was also pivotal in establishing this journal, which is now the most significant internationally recognized collection of scientific research and clinical presentations available on Performing Arts Medicine.

Dr Brandfonbrener runs her performing arts medicine clinic in rooms located in the Northwestern Rehabilitation Institute in Chicago. Dr Brandfonbrener is employed as a staff specialist in rehabilitation medicine, and has junior doctors studying with her to learn more about this specialized field. The room used for assessment of the musician contains a piano, a treatment couch, desk and chairs, and enough space to fit most instruments. All instrumentalists are requested to bring their instrument to the initial consultation, so that Dr Brandfonbrener can assess the physical aspects of their technique for potentially stressful positions or movements. An average of an hour is spent with each client. As necessary, Dr Brandfonbrener has access to audiovisual and other testing facilities located within other departments in the hospital for more specialized testing requirements.



Dr Brandfonbrener evaluating lumbar range of motion in a theatre stagehand

Dr Brandfonbrener assesses and treats a wide range of performing artists in her clinic, with a focus on musicians. To see Dr Brandfonbrener, a musician may be covered by their insurance agency, in which case the hospital will bill the agency directly. However, in the USA (like most countries) there are many musicians who do not have a permanent job or insurance, as many musicians rely on casual or freelance work, and medical attention can be prohibitively expensive. This clinic however has a trust fund that has been dedicated to providing support to musicians in genuine financial need who have an injury, so that they can access assessment and treatment. This extraordinary support was initiated by a former instrumentalist who developed such severe pain related to playing his instrument that he changed career. Subsequently he has contributed money and helped set up this fund so that musicians would be able to access care when needed. Ongoing donations and support help to maintain this financial support. This is a very unique situation within the USA, and an incredible facility to be available to attending musicians.

Dr Brandfonbrener at times refers performers to physical therapy, tending to work with Deborah Darr, who is also Feldenkrais trained, and whom I had met previously at the Performing Arts Medicine Symposium in Aspen in 2001. Ms Darr uses body awareness to help performers re-learn movement patterns that are less physically stressful. She works with musicians, but also actors and dancers. There is also a physical therapy department within the Northwestern Rehabilitation Institute in Chicago where senior physical therapist Donna Parisi also treats performing artists, mostly dancers and some musicians. Her focus on rehabilitation is to incorporate hands-on treatment with specific strengthening exercises, for which she mostly uses Pilates exercises. This clinic bills its clients through the hospital system, relying largely on insurance coverage for access to physical therapy services.

Dr Brandfonbrener has been involved in working with musicians with focal dystonia, having seen over 150 cases of this in her clinic. Focal dystonia is an extremely debilitating condition for a musician, whereby an involuntary twisting or uncontrolled movement appears within the playing technique, and can end the career of the professional musician. One of her research projects has been trialing a method of splinting to retrain normal use of the dystonic fingers, as piloted by some German investigators several years back (constraint-induced movement therapy). Her other major area of interest over the years has been in joint hyperlaxity, or double-jointedness, and what relationship there is with this condition and the predisposition to injuries in musicians. Dr Brandfonbrener feels that there is a clear indication of hyperlaxity being a risk factor to developing an occupational injury as a musician. Her large database of musicians over many years allows her to keep an accurate and detailed record of all clients seen, which then allows some retrospective analysis to see if patterns of injury causation or occurrence exist. Viewing her database set-up has been helpful in reviewing my own record-keeping system, so that similar useful information may be more easily extracted.

Dr Alice Brandfonbrener has also been involved in setting up and running health workshops for musicians at a Chicago Music School in the past. Classes were run twice weekly for an hour and a half each session, and incorporated a wide range

of health education for the music students. Each course was completed within one semester as an elective unit. Structure essentially consisted of: an introductory/historical lesson on injuries occurring in performing artists; signs and symptoms of medical problems; musculoskeletal problems and nerve entrapments; focal dystonia; different treatment options; performance anxiety; otolaryngological problems; the pathophysiology of chronic pain including the role of stress and emotional factors; guest lectures on various issues relating to musicians' health by visiting experts; instruction in some methods of prevention of musicians' problems (including stretching, warming-up and cooling-down); as well as outlining research avenues in musicians health and discussing issues in music education. The courses, however, are not still being run, partly due to the many other commitments of Dr Brandfonbrener. However, the comprehensive program designed by Dr Brandfonbrener was very interesting and an invaluable guide of an effective coverage of health issues which will be helpful in working towards setting up such a program in Australia.

SUMMARY

The week with Dr Brandfonbrener in Chicago was a thoroughly rewarding time in addressing all three of my goals in my Churchill fellowship, and benefiting from her unparalleled experience and knowledge in relation to musicians' injuries.

WEEK 2 – Toronto, Canada

Time was principally spent with **Barbara Paull** a physiotherapist who runs a Musicians' Injuries Clinic in Stouffville, a small town north of Toronto, Canada. With **Christine Harrison**, a violinist, these ladies have run health workshops for musicians for about 10 years. A meeting also took place with **Dr Jon Chong**, an occupational physician who runs the Musicians Clinic of Canada.

Useful experiences included observing Barbara's clinic set-up, liaising with Barbara about physiotherapy approaches to treating musicians, and listening to both Barbara and Christine's views on musicians' health education. Both Christine and Barbara have worked hard to raise the profile of health education among the musical community, particularly in Canada and the UK.

The Canadian health care system is structured in a manner that is similar to the Australian health care system, with a state-wide government subsidized service in the public hospital system and private insurance billing for those attending private clinics or hospitals. Therefore in Toronto, physiotherapy is billed privately, and some form of rebate can be obtained by clients if they are in an appropriate health fund. For Barbara in her Stouffville physiotherapy practice, her other physiotherapy practices and her "Playing Without Pain" workshops help to subsidize the musicians practice. One difficulty in providing a comprehensive assessment, including technical analysis, is that the fees charged compared to the amount of time spent with each client can render such a situation financially difficult. Barbara spends an hour with each musician for the initial assessment and treatment of their condition, whereas normally she would see at least 3 or 4 regular clients in this time period for the same fees. Part of the reason for this is the instrument-specific details that need to be obtained for full care of the

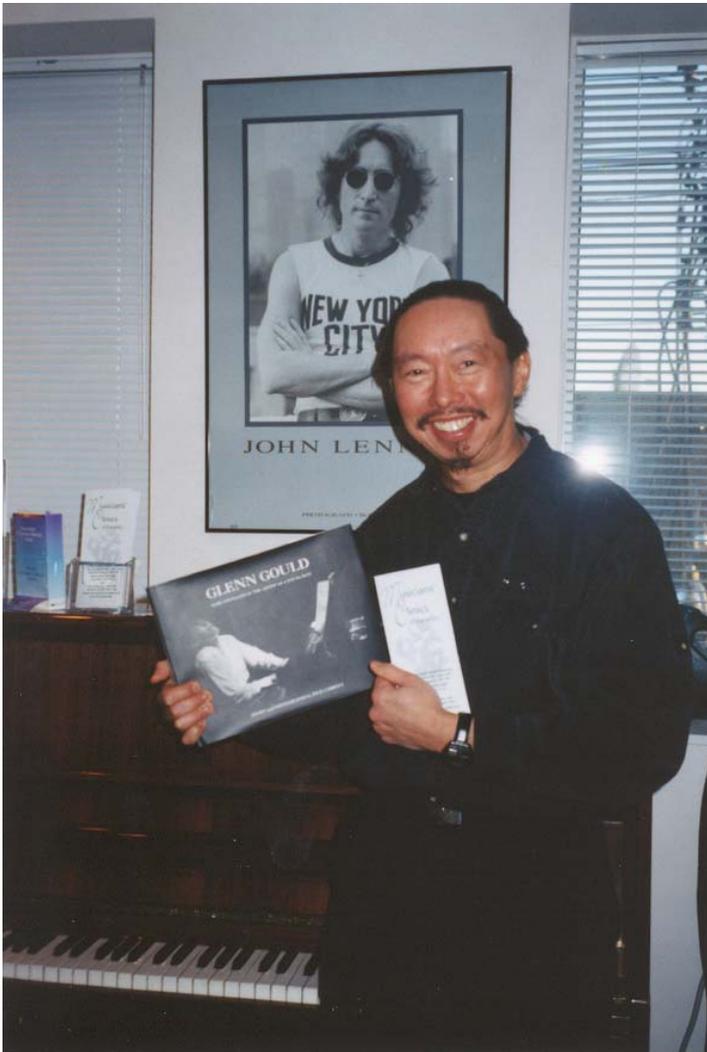
musician. Most musicians' health clinicians would use about an hour for their first assessment. For some of the instrumentalists, a session can be organized following physiotherapy with a music teacher, usually Christine, to follow up with additional physical aspects of performance such as instrument set-up. Nearly all of the clients have to travel a considerable distance to attend this clinic, so the session attempts to incorporate physical and musical goals which the performer can work on themselves.

The health education course run by Barbara Paull and Christine Harrison is aimed only at musicians, and has been well received in a large number of places. The history behind the development of this course was that Christine Harrison came to Barbara for assessment of a chronic shoulder problem that had not resolved with many different therapies and even surgery. Barbara worked closely with Christine on physical aspects of her playing that were contributing to her problems, and educated Christine on both general musculoskeletal function and healthy practice habits. Christine went from not being able to play at all to making a full recovery. This created the concept for their course, so that other musicians could access this specific health education applied to musical performance. Their 6 hour workshop for musicians is called "Playing without Pain". Barbara lectures and demonstrates on musculoskeletal issues, such as basic anatomy and exercise principles, while Christine applies these concepts to the performance situation for the musician. Following completion of the course, musicians may organise private consultations. This was a useful period of time spent discussing the types of issues commonly brought up by musicians that they had found useful to incorporate into their courses. They also made the suggestion of allowing time for specialised private consultations after running such a course, which they had found considerable demand for over the years.



*From Left to Right:
"Fred" the skeleton
educational prop for the
playing without pain
workshop, Barbara Paull,
Christine Harrison,
Bronwen Ackermann*

A meeting was also arranged with Dr Jon Chong, an occupational physician who runs the “Musicians’ Clinic of Canada”. Dr Chong bulk bills all his musician clients to the government subsidized health service (much like Medicare in Australia). He only treats musicians and shares rooms with other medical practitioners to keep costs to a reasonable level. He runs clinics both in the downtown area of Toronto, and in Hamilton (Ontario), a town a couple of hours away to the west. For Dr Chong, past experiences with attempting to run bigger multidisciplinary centres only for musicians were associated with financial difficulties, leading to his downsizing of facilities to now be essentially self-dependant. A former researcher at McMaster University, his particular interest now lies in following current research on the potential contributions of central nervous system to musculoskeletal conditions occurring in musicians, including the interface between psychological stress and pain. Dr Chong’s clinic also has a piano, and room for instrumentalists to display physical performance for assessment and management purposes.



Dr Jon Chong at his Toronto clinic pictured with one of his favourite musicians, the late John Lennon, and a book on Glenn Gould which looks at some of the physical problems (specifically focal dystonia) suffered by this great pianist.

A recent development in Toronto is the Al and Malka Green Artists Health Care Centre, a multidisciplinary centre focusing mostly on alternative health care for performing artists, but also with a physiotherapist. A significant initial donation allowed the centre to be established, again in order to make specialized services available to performing artists who may otherwise be unable to afford such treatment. The centre is also partially sponsored by the musicians union of Toronto as a service to regional musicians. The centre is in its very early stages, having only opened officially on November 6th 2002, and at the time of my visit to Toronto was not yet fully staffed. While unable to visit the centre, I spoke with the physiotherapist working at the centre. Her experience and background to date has mostly involved working with dancers. The centre is aiming to run workshops for a wide range of health issues, as well as potentially becoming involved in research activities. The decision to have a focus on access to alternative therapies was driven by the perception that many musicians prefer to seek out this kind of approach.

SUMMARY

With the healthcare system in Canada more closely representing the system used in Australia, it was interesting to note the importance again of a mixed caseload in ensuring the viability of a private physiotherapy practice that also specializes in treating musicians. The experiences of Barbara and Christine in developing their workshops for musicians were very helpful in clarifying and provide ideas which will be useful in the implementation of such workshops in Australia. The meeting with Dr Chong highlighted some of the financial difficulties associated with running a dedicated clinic for musicians, and highlighted the need for getting additional funding to make such a proposition viable.

WEEK 3 – Ithaca, New York

This week was spent with **Professor Nick Quarrier** from Ithaca College in upstate New York, and also with some of the Ithaca College music teachers.

The week spent with Professor Nick Quarrier was a fantastic time of detailed discussions sharing ideas on physiotherapy approaches to assessing and managing injuries in musicians. We also spent time collaborating with ideas for further research in this area, as well as Professor Quarrier presenting his ideas on health education for musicians and health professionals. It was also very interesting to spend time with some of the music teachers at Ithaca College with an interest in health aspects of playing an instrument, who incorporated techniques such as Feldenkrais, ideokinesis, Fitzmaurice voicework and Alexander into their teaching approaches.

For the music students at Ithaca College in upstate New York, an on-campus performing arts physical therapy clinic allows immediate free access to experienced physical therapy assessment and treatment provided by Professor Nick Quarrier. Ithaca College is located in Ithaca, nearby to the large Cornell University, and has both a physical therapy training school and a music education training institution. This clinic also allows some practical training of the physical

therapy students in assessing musicians' injuries, as well as providing free treatment for any injured student or staff member of Ithaca College. Professor Quarrier has run this Performing Arts health clinic specifically for the music students and staff once a week for several years. As part of the physical therapy training school, the clinic has access to both a dance floor and bar, a piano, and a range of electronic equipment such as video cameras and computerized testing devices.

Due to the close relationships and proximity of Professor Quarrier and the Ithaca music teachers, it is also possible for collaborative research efforts to be performed. Professor Quarrier has published papers on physiotherapy approaches to musicians' injuries for over ten years now. One of Professor Quarrier's recent areas of interest has been in evaluating effects of the sympathetic nervous system on injuries in the musician. He has also been interested in motion analysis of the technique of musicians, and we spent much time going through the issues associated with such a task, including going over a research project I had completed as part of my doctoral studies in this area.



Professor Nick Quarrier (standing) observes the piano technique of one of the music students

One of the longest running educational workshops for both health professionals and musicians was established by Professor Nick Quarrier, and occurs once a year in upstate New York. A group of music teachers and health professionals are on the teaching panel, and each present a unique aspect on health issues from their experience. As well as physical therapy instructions on principles of physiology and anatomy and how these relate to the musculoskeletal assessment of the injured musician, there are also lectures presented on a variety of other disciplines (for example Feldenkrais and Alexander techniques). Musical instruction occurs

on aspects of physical requirements for performance in several musical domains. This course is run for both health and musician participants, and therefore is somewhat limited in how specific it can be in a health or a musical context. However, having the two groups together can provide for interesting networking between the different professional groups. There is currently a level one and a level two course available, both of which are four days in duration.

The first music professor I spent time with was Carol McAmis, a Feldenkrais-trained voice teacher, who also lectures at the annual “Healthy Musician” workshop in Ithaca. She feels that applying body awareness enables singers both to be more responsive to changing requirements in performing situations, and also feels that the awareness of methods of releasing tension in particular areas is an invaluable tool against performance anxiety. It is not uncommon for performers to sing their scales whilst sitting and bouncing on a gym ball!



Carol McAmis (right) works with a singer on being able to release excessive lip tension during singing, both by observing the movements using a mirror, and by physically loosening the area with her finger

For Debra Montgomery, another singing teacher at Ithaca University, she uses Alexander technique to help her students improve their posture for vocal performance. Her interest is in deconstructing poor vocal mechanics and breathing patterns, then re-establishing correct mechanics with the assistance of some of the Alexander technique principles. Yet another approach is adopted by Krista Scott, who teaches voice skills in the acting department of Ithaca College. Ms Scott uses the technique called Fitzmaurice Voicework. It draws primarily from bioenergetics and the work of Alexander Lowen, the Alexander technique, and Yoga. The goal of the process is to combine physical experiences with mental focus, and generally takes place in two stages. Firstly, techniques are used which aim to give the performer awareness of the body natural breathing actions as well as a range of natural vocal expressiveness. Following this phase, these principles are applied to the performance situation, encouraging economy of effort. The goal of the process is to increase range of vocal expression without causing strain.

In the other instrumental departments, a meeting was organized with Mr Gordon Stout, a world renowned marimba player, with the help of the Head of Percussion studies at the Canberra School of Music, Mr Gary France, and Professor Quarrier. Mr Stout has worked now for several years on analyzing physical aspects of marimba performance which he calls “ideokinesis”. This essentially refers to the ability to know where the marimba keys are located without relying on the visual senses, i.e. through a form of muscle memory. Gordon shared his thoughts on how different mallet grips for marimba playing appear to suit different physical hand shapes and sizes of the performer, and his analogies between playing the marimba and his favourite sport, tennis. We discussed many other physical issues associated with playing this challenging instrument, with a series of rather wonderful demonstrations provided by Mr Stout along the way!



Bronwen Ackermann and Gordon Stout at his marimba

SUMMARY

This week of collaboration and assessing musicians with Professor Quarrier was very professionally stimulating, due to both our similar physical therapy interests and long-term involvement in this specialized area of musicians health. Further collaboration with Professor Quarrier may be possible in the future to work on physiotherapy projects. As Professor Quarrier has worked over the years with many of the music faculty who share his interest in the physical aspects of musical performance, I was therefore able to meet with several of these music teachers and learn some of their approaches to injury prevention and physical aspects of playing.

WEEK 4 – New York, New York

The time in New York was principally spent at the **Kathryn and Gilbert Miller Health Care Institute for Performing Artists**, a multidisciplinary centre offering a wide range of services. Time was spent with **Dr Mitchell Kahn** an internist specializing in this field and a Performing Arts Medicine Committee member, **Dr Lillie Rosenthal**, an osteopathic doctor combining medical care and a hands-on approach for performers, and physiotherapists **Ann-Marie** and **Sean Gallagher**. A meeting was also possible with **Carol Johnson**, a hand therapist who treats musicians. A brief impromptu visit was made to **Schmuel Tatz's** physical therapy clinic at Carnegie Hall. A morning was also spent with **Dr David Weiss**, an orthopedic surgeon and sports physician who specializes in treating performing artists, particularly dancers.

The director of the Miller Institute, Dr Mitchell Kahn, spent a week illustrating how only at a New York pace of life can one operate such a busy clinic! As well as Dr Kahn's services (a primary care physician and internist), within the clinic there are a wide range of medical specialties available, such as an orthopedic surgeon (Dr Philip Bauman), an otolaryngologist (Dr Anthony Jahn), and a rehabilitation specialist (Dr Lillie Rosenthal). There is also a physical therapist and usually a hand therapist (although this position was vacant at the time of the visit).



Dr Mitchell Kahn in his office at the Miller Institute

Dr Kahn feels that the most successful way to run his large multidisciplinary clinic is by providing general primary care services as well as the specialized services to the musicians. Other services such as physiotherapy provided within

the clinic are subcontracted from the Miller Institute. The physical therapists are sub-contracted to the clinic, and the proprietor, Sean Gallagher, also runs another large clinic in town, and his therapists provide backstage services to the dancers on Broadway shows. While the physical therapists at the Miller Institute have a dance physiotherapy focus, they are also involved with the rehabilitation of musicians. As well as hands-on therapy, the physiotherapists supervise clients performing individually tailored exercise programs, and there is a bar available to watch dancers warm-up and barre routines. Billing for physiotherapy services is mostly covered by insurance companies.



Sean Gallagher (foreground) and Anne-Marie (background) treating patients at the physical therapy centre at the Miller Institute with a physical therapy student observing.

As well as the health services provided by the Miller Institute, Dr Kahn and some of his staff are involved in research and scientific testing of performing artists. The clinic includes a voice laboratory and musical performance evaluation centre with sophisticated audiovisual and computerized measurement equipment. A grand piano is available for piano technical analysis, and the room is large enough to allow musician performers to bring in other instruments for assessment. Dr Kahn is also an active member of the Performing Arts Medicine Committee.

In the Roosevelt hospital in New York, occupational hand therapist Carol Johnson has been treating hand injuries of musicians for about 10 years, following an earlier career of piano teaching at the Juilliard School. This background gives her good contacts with musicians in New York. An enjoyable meeting was spent discussing our respective approaches and involvement in treating musicians, and approaches to encouraging good physical use of the body while making music. While still being guided along a progressive rehabilitation program, Carol encourages musicians to take a very active role in the management of their injury to avoid dependence on therapies, and work on preventative strategies.



Bronwen Ackermann and Carol Johnson (right) in New York

A visit was also made to Schmucl Tatz's physical therapy clinic in Carnegie Hall, popular with various stars of the stage and screen, with a wall full of signed celebrity photographs reminiscent of the Carnegie Café down on the street level below. Mr Tatz, who was trained in Lithuania, states that he has no special approach for musicians, treating all clients the same way, which involves a combination of hands on work and the use of lasers, traction and electrical stimulation. He spends a considerable amount of one on one time with his clients, particularly in the early evaluation of their injuries.

The final practitioner visited in New York was Dr David Weiss, an orthopaedic surgeon and sports doctor who has been working particularly in the Dance community for many years. As well as working in his own practice in one of the large New York hospitals, he consults weekly at the Harkness Dance Centre in New York (voluntary), and also provides service for a nominal fee at the Juilliard School in New York. The clinic at the Juilliard School provides a range of services to dancers and musicians, including psychology and physical therapy, and has been very gradually increasing its services over the past 20 years, although still runs on a part time basis. Dr Weiss, in the morning spent with him, consulted mostly with Broadway performers and his caseload included both sports medicine and orthopaedic surgery opinions. The consultations were very thorough and impressive, with his dual specialisation allowing a full understanding of both the conservative and surgical approaches to management of a wide range of musculoskeletal disorders, thereby giving the patient a very clear picture of treatment alternatives. Dr Weiss is also busy on the board of the International association for Dance Medicine and Science (IADMS). Dr Weiss's caseload is predominantly dancers and he works closely with some of the dance physical therapists in New York.

SUMMARY

While a diverse and excellent range of services were available for musicians in New York, it was a less developed area in this city than may have been anticipated, given the number of musicians working there and the good pay and conditions that these musicians generally enjoy. An enjoyable and educational time was spent with these health professionals discussing clinical aspects of treatment and assessment of musicians and dancers.

WEEK 5 – Hannover, Germany

The time in Hannover was principally spent with **Professor Eckart Altenmueller**, neurologist and director, at the Institut für Musikphysiologie und Musiker-Medizin (Institute for Music Physiology and Music Medicine). Some time at the institute was also spent with **Dr Hans-Christian Jabusch**, a doctor working with Professor Altenmueller, and **Stephan Fasnacht-Lenz**, a physiotherapist working with musicians in Hannover.

In Hannover, in Germany, the impressive clinical set-up at the Institute for Music Physiology and Music Medicine is quite unique. Professor Altenmueller has plenty of space for a thorough assessment of all his clients, including performance analysis. As well as this, there are many on-site sophisticated measurement devices which can be used to run further medical tests as required. Professor Altenmueller is a neurologist, so many patients are referred for full neurological examinations. Prior to the physical and neurological examination, musicians demonstrate their technique to Professor Altenmueller, so that any abnormalities associated with playing can be identified. A digital video camera at the ready allows immediate recording of relevant problems. A physical and neurological examination allows diagnosis of the presenting condition, and then each client has an in-depth discussion with Professor Altenmueller on details of their injury, and the methods required to approach management and treatment of the condition. Clients then receive a written correspondence for their referring doctor and any therapist referrals that may be required. Many of the clients come from all over Germany and Europe, so it takes much longer to give a full assessment, diagnosis and management plan in one visit. The clients are partly charged by a medicare type system, but many of the facilities are available as a result of grants that have been won by Professor Altenmueller and his team for their outstanding research, in the field of music medicine and brain research.

The clinic in Hannover is also unique for its training of staff members. Professor Altenmueller's team is employed on a six yearly basis, and then each team member is replaced in term as their contract expires. These now very experienced researchers and practitioners can take their expertise to other centres. At the time of my visit, Dr Hans-Christian Jabusch was halfway through his six year tenure, and was working with improving objective measurements of focal dystonia. He also shares the clinical load with Professor Altenmueller, following a similar assessment protocol. The clinical load attending this practice often had

neurological symptoms, with an extraordinary number of clients with a condition known as focal dystonia, compared to the numbers seen in a regular clinical practice. Occupational focal dystonia involves an involuntary twisting, tremor or contraction of muscles that occurs when trying to perform a particular skill, in this case musical performance. It is a devastating disorder and can end a professional career. It is relatively uncommon, although this syndrome is now recognized to be partly behind the syndrome known as the “yips” in golf, and writers cramp. The neurological assessment of these patients includes using sensory feedback tricks to assess whether this changes dystonic movement behaviour, and using complicated mental algorithms which can also trigger the dystonic movements through complicated neurological processes. The practitioners in this clinic are very sensitive to the psychological needs of their clients in relation to their injury, frequently finding that this complicates the injury picture, much as occurs in many clinical settings. However, in the music field competition is fierce and there is a traditional apprehension about admitting to an injury, being seen in some ways as a kind of weakness or acknowledgement of inferior performance skills. Unfortunately, many relatively minor injuries related simply to such factors as overusing muscles can become complicated by ignoring the problem and continuing to play until pain becomes too severe. Part of the rehabilitation process in Germany also involves the use of a psychologist whenever necessary.



Professor Altenmueller (right) takes digital video footage of the technique of a professional cellist.

Professor Altenmueller runs classes on musicians' health for the students at the Hannover music school. The primary problem encountered was the tendency for the non-core subject health education classes to be attended mostly by music students who had already developed problems related to performing. As such, it

was unable to be assessed in terms of relative effectiveness in injury prevention for asymptomatic musicians. The second problem encountered by Professor Altenmueller was that classes were more likely to be attended if run by known health practitioners, musicians or music teachers, and new health course had poor attendance rates. For example, in the classes run on managing performance anxiety, the performers who suffered more significantly from this condition were afraid to go to the classes and be “found out”.

Dr Altenmueller, as a neurologist, focuses much of his research on the neural aspects of playing a musical instrument. Much of his current interest has been in further understanding focal dystonia, and many interesting treatment ideas worldwide have emanated from this clinic. The work by his colleague, Dr Jabusch, on objectively quantifying focal dystonia in pianists has led to some useful insights into the types of problems experienced by pianists with focal dystonia as well as allowing accurate measurements of the condition. This allows both diagnosis of focal dystonia in pianists (in conjunction with other tests), but is also important to assess the effectiveness of any interventions to treat the condition. Approaches to the treatment have been limited in this institution, but a physiotherapist, Stephan Fasnacht-Lenz, was about to become involved in a retraining program, so it will be interesting to follow this progress. Other areas of research involve assessing the types of brain regions used for different tasks by musicians, and the relative size and location of these regions. The effects of perception and other psychological factors on incidence and nature of pain in musicians is another interesting area which these researchers are working on.

A day was spent with physiotherapist Stephan Fasnacht-Lenz in his practice in Hannover, where again he sees general musculoskeletal problems as well as musician-specific injuries. Stephan spent 10 years working with a well-known rehabilitation specialist, Professor Vladimir Janda, and incorporates many of his ideas into his clinical practice. Some of his devices used to retrain balance, designed by another German doctor with Professor Janda, were very interesting. He uses these balance stimulation devices, hands-on therapies and general exercise and stretching programs to treat his clients.

SUMMARY

This week was very inspiring particularly from a research point of view. To be able to discuss research ideas, and hear of the latest developments being worked on in this impressive laboratory was invaluable. Clinically, watching the assessment and management of the focal dystonics was also very useful, as it is not so common to see so many in a short space of time, and particularly in light of Professor Altenmueller particular skills in the management of these musicians.

WEEK 6 – London, England

In this week, time was spent at the **British Performing Arts Medicine Trust (BPAMT)** where I attended a clinic run by **Dr Christopher Wynn-Parry**, an eminent hand surgeon. Time was also spent with an occupational therapist who specialized in hand therapy, **Katherine Butler**, who works the Wellington Hospital Hand Clinic, and does some voluntary work at the BPAMT with musicians. **Rosanna Preston**, the director of the BPAMT, also shared her views on some of the difficulties associated with running such an organization on a voluntary basis.

The time spent in London was very useful, particularly to understand further the operation and structure of the British Performing Arts Medicine Trust, which provides a free health service to musicians in the UK.

The BPAMT was founded in 1984 as a special charity to provide free services for musicians. The Trust also administers AMABO (The Association for Medical Advisers to British Orchestras), which aims to provide medical services to orchestral musicians. The trust is reliant upon voluntary help from doctors and other health practitioners in order to provide this service free of charge. Dr Christopher Wynn Parry has given regular health clinics for the BPAMT, and has continued to do so since retiring from his own clinical practice. There are a group of different medical specialists who intermittently freely donate their time to spending a session at the BPAMT to provide an advisory service for the musicians. The main difficulty associated with running an institution in such a fashion is obviously requiring practitioners to work there on a voluntary basis. For those with other full time positions, to work during the week voluntarily at the BPAMY can mean taking leave without pay from their normal job. This can mean that services are only provided sporadically, as the practitioners involved cannot afford to provide their services free of charge on a regular basis. Rosanna Preston, the new director of BPAMT, has been looking at ways to try and gain more funding for the organization so that a more regular service can be provided with some kind of remuneration available to the working practitioners. Avenues to be investigated include musician organizations such as the musicians union, as well as funding from trusts or government sources, or possibly by receiving research grants. This issue is interesting, as it has already been recognized as being an issue which would hamper success if such an organization were to be founded in Australia. It is likely that the greater musician population will need to take some financial responsibility for the health of musicians, as it seems to be doing in the new health clinic in Toronto.

The clinic with Dr Wynn Parry was very interesting. To spend time with such a knowledgeable expert was rewarding, not only in watching his assessment skills, but also in his approach to the musicians' which was understanding, knowledgeable and compassionate. A wide range of musicians attended the clinic, with a flamenco guitarist, 2 classical violinists, a pianist and a flautist providing the morning session. Following Dr Wynn Parry's assessment he gives the musicians a program to follow, usually referring back to their local doctors and therapists for ongoing management. The service at BPAMT is mostly designed to

diagnose the problem and give appropriate management plans, as well as having therapists such as Kath Butler or Joan Warrington (a London physiotherapist) provide some stretches or exercises to commence the rehabilitation process. All clients receive a clear explanation of the cause or nature of their injury, and preventative measures are implemented wherever appropriate. In one client, Dr Wynn Parry detected Marfan's syndrome, a connective tissue disorder, for which he commenced the person immediately on a "joint protection program".

Time was also spent with Katherine Butler at the Wellington Hospital in St John's Wood, London, a hand clinic with a multidisciplinary team of specialists, physiotherapists and occupational therapists. It was interesting to view some of the recent developments in computerized programs for performing both measurements and exercise programs for clients following hand surgery, some of whom are musicians. Splinting may also be used for the musicians, and the therapists at the Wellington hospital are often involved in making such splints.

SUMMARY

The time spent in London was interesting, particularly to investigate how services were being provided in a specialized manner to the musicians. Some of the lessons learnt by the BPAMT may be valuable in considering setting up such an institution in Australia.

WEEK 7 – Turku, Finland

The time in Turku was spent at the **First International Musicians Medicine Conference**, organized by the Finnish society for music medicine. This conference brought together a wide range of specialties, mostly medical, from around the world to present the latest information on advances in this field. In this conference, I met up with some of the health professionals I had visited earlier in the year, as well as making many new contacts.

The first day of the conference was devoted nearly entirely to focal dystonia, as much is being learnt about this condition in current research. Dr Jabusch presented some of the most recent findings on this condition from Hannover, while Dr Lederman and Dr Brandfonbrener presented their experiences from America. Other experts discussing this condition included Professor Raoul Tubiana from Paris, Professor Maran from Edinburgh, and a presentation was made by Glenn Estrin, a victim of focal dystonia who is now on the committee of the American dystonia research foundation. Following this session, presentations were made on the rehabilitation of the injured musician, where I was also able to present some of my PhD research involving violinists. Many of the specialists then presented overviews of the epidemiology and etiology of the musicians' injuries they had seen over the years, often of over 1000 cases. Specific discussions occurred on hand injuries in musicians, ergonomic aids for musicians, joint laxity effects on musicians, the role of surgery for musicians, psychological aspects, and hearing problems in musicians. Many workshops also took place where participants could learn the methods used by health professionals in different countries for various rehabilitation and assessment strategies. Future directions in music medicine was also actively discussed, as most health

professionals see the need for providing further specialized training, but also recognize the difficulties associated with establishing new specialties. Ways of implementing health education and further directions in improving this capability was also discussed. It was also pleasing to see music teachers and music administrators at this conference, presenting some of their views on physical aspects of music making, as well as asking for implementations that could be made for the orchestral settings.

As well as the four days of academic presentations, many events were organized to allow opportunities to further discuss issues arising from the days' proceedings, as well as getting to know each other better. It was a very well-organized and busy conference, and the atmosphere of sharing information, and inter-specialty communication and collaboration made for a most productive and enjoyable time. Contacts made at this conference will be valuable colleagues, for both potential further research, and also information sharing as needs arise.

SUMMARY

This conference allowed a very elite group of musicians' health specialists to gather together to discuss very detailed issues relating to this topic. The time was spent in both the conference situation and in external activities organized by the Finnish organizers, the Vastiimaki family, with valuable exchanging of ideas and the friendships and colleagues.



Martti Vastamaki (left) a hand surgeon from the Finnish society of musicians medicine, Raoul Tubiana (second from left) a hand surgeon from Paris and a pioneer in the field of musicians medicine, Patrice Berque (third from left) a physiotherapist from Glasgow, and myself at the Turku conference

WEEK 8 – Aspen, USA

The time in Aspen was spent attending the 21st symposium of performing arts medicine. Most of the health practitioners at this conference were from the United States, and represented a multidisciplinary group of therapists, musicians and medical specialists.

At this conference, information was presented on both injuries occurring in dancers as well as those occurring in musicians. Presentations in the realm of musicians' health this year had quite a focus on motion analysis, including my presentation on this topic, and included sophisticated computerized analyses from the well-equipped North American laboratories. There was also some of this information presented on dancers. Another topic that received considerable attention at this conference was that of parental involvement in children studying in the arts, with some of the specialists who were themselves also artists presenting their viewpoints on this matter. Some very interesting presentations were also made by piano teachers, who presented their experiences and views on preventing injury in their instrumental domain. While some of their views differed, and were not coming from a medical perspective, it greatly helps the health professionals to further our understanding of the instrumental issues that are involved in any steps we may be taking to try and reduce physical stress in instrumental performance. There was a whole session on voice problems in singers, providing useful information on remedies to help singers, as well as the kinds of injuries that can occur to the vocal folds. There was also quite an emphasis on psychological issues in performers, including a 2 hour practical demonstration on reducing anxiety and enhancing performance in singers by two Americans voice trainers, Alma Thomas and Shirlee Emmons.

Much like in Finland, opportunities were plentiful to spend time with health experts and some musicians to discuss issues in more detail, as well as time getting to know each other. As part of the Aspen conference, attendees receive tickets to the Aspen music festival, so a wonderful opportunity to attend concerts by the Aspen Music Festival Orchestra, and a chamber concert by the wonderful Takacs Quartet.

SUMMARY

As with the Turku conference, this conference provided opportunities to re-unite with colleagues met previously, and to also establish further networks of colleagues and friends within this specialized group of health professionals.



Left to right: Clay Miller, physiatrist from Boston MA, Thomas, percussionist and osteopath from Madrid, Susan Arjmand, family physician in Chicago and conference organiser, Bronwen Ackermann, and Dwight Dowda, occupational physician from Sydney.

CONCLUSIONS

The field of musicians' health is a relatively small, but rapidly expanding, group of enthusiastic practitioners scattered around the world. The opportunity to spend time with these people as a result of my Churchill Fellowships has given me heightened enthusiasm for further ventures into research in this field. Not only have new ideas been formed, but relationships with international colleagues that may allow international collaboration on potential research projects to be performed in Australia. The ideas on measurement types, and avenues of investigation in particular conditions such as focal dystonia were very thought provoking.

Exploring health education facilities currently existing overseas has led to understanding some of the complexities and issues involved that would need to be addressed prior to attempting to implement these programs in conservatories over here. The private course details discussed with Professor Quarrier and Barbara Paull provided a framework of ideas they had found useful, which in turn will be useful to refine such course of my own.

The clinical methodology of these health professionals has allowed me to refine my own clinical practice to allow better recording of data that may provide a more useful database for analysis of typical injury problems. In my clinical situation of seeing a mixed load of general clients as well as musicians, the experiences overseas confirmed that this type of clinical load seems to be a good balance.

RECOMMENDATIONS

The issue of addressing musicians' health education needs to actively involve the musicians, so that they are supportive of any implementation strategies. This has been helpful in such courses run in Germany. Education needs to address the issue also in terms of the incidence and effects of such an injury, which was presented neatly by several specialists in the Finnish conference of this fellowship. To improve health education for musicians in Australia, I am now offering private courses to music organizations to train them on musician-specific aspects of injury prevention and management. I have also been involved now in lecturing to music teachers to spread awareness of their roles in helping prevent injuries in their students. I would like to work further on establishing injury prevention guidelines in undergraduate music studies, and am currently looking at ways this may be achieved in a sustainable fashion. Structuring the course to collect information on the benefits of the course to the students will be important in ensuring the long-term viability of such a course. Musicians themselves need to be proactive in supporting such work that is ultimately of benefit to themselves, so it is important that they understand and are supportive of such work. This may be done with teachers and students through the action of musicians unions, whether professional or student bodies. Whether additional funding to run such programs could be obtained through government bodies needs to be further explored. The professional musicians also need to be involved as music students may not be aware that this problem is common, and that it is more likely to affect them than not unless they are pro-active about early management in injury. I am working on spreading the importance of this information to both professional and student music organizations by presentations and publications, and have also established a web-site, which I hope to build up over time to provide useful information.

Clinically, management of musicians' injuries has not been approached with adequate understanding of performers' needs and expectations. As a result of the Churchill travels, the need for developing a course for educating health professionals on the types of injuries occurring in musicians and their assessment and management is apparent, and I am now working on this to make specialized services become more widely available in Australia. Issues that arose with the design of such course overseas were extremely useful in providing comprehensive considerations that are currently being evaluated.

Sydney University has expressed interest in supporting further research in this field by appointing me to provide supervision to students to do further research in the area of musicians' health. I hope to be able to assist students from a variety of backgrounds in this regard. I also hope that some research with international collaborators may be possible in light of the recent contacts and discussions with colleagues made possible by my Churchill fellowship travels. It may be possible through further research to attract funding and increase the profile of this field in Australia.

I would like to finish my report by encouraging anyone with a specialized interest wishing to pursue their dreams to consider applying for a Churchill Fellowship. This was an experience of a lifetime, and I am grateful to the Winston Churchill Memorial Trust for giving me such a wonderful opportunity.